## *5.6 Protection of Cultural Resources*

The Wachusett watershed is rich both in its historic and pre-historic resources. Accordingly, safeguards have been build into the Division's land management program to protect cultural sites and artifacts, both through the identification and mitigation of possible impacts, and through a program of proactive vegetative management around significant historical sites.

### 5.6.1 Review of Proposed Silvicultural Projects

Without appropriate controls, forest management programs can be detrimental to archaeological resources. Modern harvesting methods employ a wide range of heavy machinery, some of which, because of weight distribution and/or tire characteristics, can do irreparable damage to prehistoric sites. Skidding logs can further disturb the soil. Operations also entail clearing areas for landings, turn-arounds, and access roads. Those archaeological sites that lie closest to the surface can be obliterated by such activities. It is these same type of sites - those that are the youngest in time (i.e., the Early, Middle and Late Woodland) - that were most susceptible to destruction by the plow of the local farmer, and thus represent a relatively scarce piece of the archaeological record.

Accordingly, the foundation of MDC's Cultural Resource Management Program is a process for reviewing proposed silvicultural operations. The review involves evaluating and assessing the impacts that harvesting could have on archaeological resources should they exist at any given operation. This process has been developed over the past several years, and is formalized in this section.

#### *5.6.1.1 Project Description Forms*

After marking the boundaries of a planned silviculture operation, Division foresters submit a *Project Description Form* to the MDC Chief Archaeologist for in-house review. The form provides a detailed narrative of the proposed operation including: location and size, description of topography, forest cover and soils, goals of silvicultural operations, equipment limitations, notable historic features, plant and wildlife communities, and hydrology.

The primary analytical tool employed in the review of impacts to prehistoric archaeological sites is the evaluation of *site location criteria,* which are discussed below.

#### *5.6.1.2 Site Location Criteria*

##### 5.6.1.2.1 Prehistoric Sites

At no time in prehistory did human populations roam haphazardly and endlessly across the landscape. Even Paleo Indians, who were the first human occupants of New England approximately 12,000 years ago, are believed to have maintained an economic subsystem that involved a seasonal pattern of restricted wandering within loosely defined territories (Snow 1980:152). Over the next 10,000 years, sea levels rose and the forests and vegetative communities became more constant. During this time, Native Americans adapted their tool kit and strategies in order to take advantage of the new resource mixes and opportunities the new environmental conditions afforded. Thus, the pattern of habitat use, and consequently the locations of prehistoric sites and artifacts are largely predictable.

The key criteria for determining the archaeological sensitivity of a given site include:

- The degree of slope (i.e., slope < 5 - 7 degrees).
- The presence of well-drained soils.
- Proximity to fresh water (i.e., within 1,000 feet) at the time of occupation.

Other variables such as aspect, availability of stone suitable for tool-making, and elevation above sea level, may also be important. When one or more of these criteria are met, the site of the proposed silviculture operation is considered to have been an attractive location for Native American habitation or subsistence activities, and are thus classified as *highly sensitive* or *moderately sensitive* for prehistoric resources.

#### 5.6.1.2.2 Historic sites

In the past, Division foresters have used original land taking plans, as well as direct observation, to identify the location of historic building foundations. In 1994, the Division contracted with Boston University to inventory historic sites on the Prescott Peninsula at Quabbin Reservoir. This inventory identified a number of sites that were not on taking plans but were on 19th century town atlases. This project also improved the availability of information on the sites identified, by producing a data sheet and a map for each site. MDC hopes to continue this project over the next several years in order to complete the inventory of historic sites on its properties. The MDC Chief Archaeologist will use this information when reviewing proposed silvicultural operations.

### *5.6.1.3 Harvesting Restrictions and Limitations*

For those silvicultural operations planned for sites that have been classified as *highly* or *moderately sensitive for prehistoric resources*, restrictions are recommended on the time of year and the types of equipment and techniques used. By employing restrictions on harvesting operations that minimize ground disturbance, a compromise is achieved that allows the harvest to occur, while affording some protection to whatever archaeological resources may lie buried below the ground.

The following are types of restrictions that may be recommended for *highly sensitive* areas.

- The harvest should occur when soil conditions are frozen or dry enough to prevent soil compaction.
- Soil disturbances due to inappropriate or oversized equipment should be avoided.
- Feller-buncher-processors, with long reach and weight distributing tracks, should be encouraged.

For those proposed operations in areas classified as *moderately sensitive,* one or more of the above restrictions may be recommended. Details of appropriate restrictions will be fine-tuned through close interactions between the Division foresters and the MDC Chief Archaeologist, including analysis of past management sites for potential impacts.

In some cases, particularly with large acreage sales, portions of a lot may satisfy some, or all of the site location criteria, while other portions satisfy none. Here some of the above harvesting restrictions may be recommended for the sensitive portion of the operation, but not apply in other portions. On

rugged upland sites with complex microtopography or significant surface stone, or in previously disturbed areas that fail to meet the key criteria, restrictions are less likely to be placed on the operations.

### 5.6.2 Vegetation Management at Historic Sites

Recognizing the realities of existing, and likely future fiscal constraints, the Division has developed a strategy for preserving its historic resource base. The strategy is extremely modest in man-hours and cost, but it can have a lasting effect on the survival of historic archaeological sites.

Vegetation, if left to grow unchecked in and around stone foundations, and other historic structures like dams, raceways, etc., will ultimately alter these archaeological features. The dislocation of foundation stones, and the spalling of cement caused by root activity are among the most immediate threats to some of these cultural resources. Should uncontrolled growth continue, in several cases the existing archaeological remains will be of little value and interest at the time that the Commonwealth is once again prepared to undertake protective management.

Accordingly, a limited and selective management program to control vegetation growth in and around archaeological sites and historic buildings and structures is recommended. This same limited program has been employed on historic sites in the MDC Reservations & Historic Sites Division.

As a general site stabilization and preservation technique, vegetation management will entail:

- Removal of most small to medium sized brush, saplings, and trees from on, and within archaeological features (e.g., cellar holes and their foundation walls; channelized stream beds; mill dams; and historic buildings).

- Removal shall be by cutting as close to the ground as feasible. Vegetation should not be pulled, or otherwise dislodged in a manner that would affect root systems.

- While manual removal may often be the best technique, in some cases where the terrain is sufficiently level and stable, the Fortech type feller-buncher may be appropriate. This machine has a long reach that limits the need to bring equipment too close to the structure. It picks the tree up, thus there is no concern about the direction of the fall; and the tracks tend to distribute the machine's weight, thereby limiting compaction to buried deposits.

In most cases, Division staff should perform the vegetation management around historic sites. However, there may be private loggers/contractors who are well known to Division foresters and are particularly skilled and careful, who could be allowed to undertake the work. At sites that are imminently threatened, and that otherwise fall within a proposed silvicultural operation, it may be prudent to allow the private contractor to perform the selective cutting around historic sites. Contracts could include clauses that direct the logger to take extra care and precautions around cellar holes/foundations, etc. Vegetation management will in most cases require periodic and cyclical treatment depending on the nature of the growth, the condition, and significance of a specific site.

### 5.6.3 Long Range Cultural Resource Management Initiatives

The following is a list of important initiatives that should be undertaken when funds and staffing are available:

- Inventory historic sites. Identify by age, owner, activities, and buildings. This data has been compiled for most of the Quabbin properties and will be used to help list priorities for vegetation management efforts and improve the review of silvicultural operations. Future inventories will cover the remaining MDC lands.

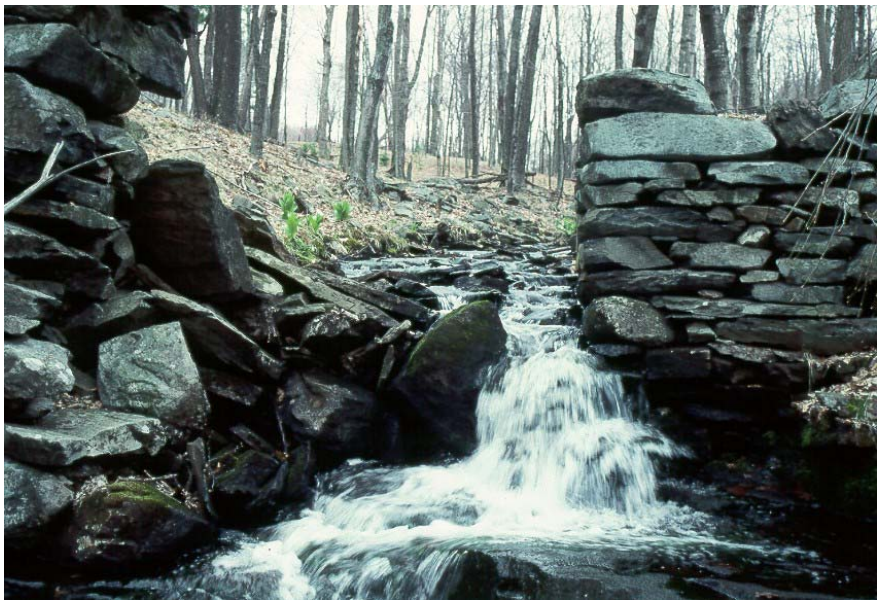
- Enter known prehistoric sites into the GIS mapping system.

- Map sensitivity criteria for prehistoric sites using GIS.

- Conduct archaeological sampling of Red Pine Plantations, which were primarily planted on previously cultivated land, to determine the nature of sub-surface disturbance and survival factor for prehistoric sites.

- Develop educational signage and displays on Native American landuse of the region.

- Encourage local universities to conduct archaeological field schools on watershed lands to further test and refine site location criteria.



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Old millsite